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* * * * * Welcome to STN International * * * * *

NEWS	1		Web Page for STN Seminar Schedule - N. America
NEWS	2	DEC 01	ChemPort single article sales feature unavailable
NEWS	3	FEB 02	Simultaneous left and right truncation (SLART) added for CERAB, COMPUAB, ELCOM, and SOLIDSTATE
NEWS	4	FEB 02	GENBANK enhanced with SET PLURALS and SET SPELLING
NEWS	5	FEB 06	Patent sequence location (PSL) data added to USGENE
NEWS	6	FEB 10	COMPENDEX reloaded and enhanced
NEWS	7	FEB 11	WTEXTILES reloaded and enhanced
NEWS	8	FEB 19	New patent-examiner citations in 300,000 CA/CAPLUS patent records provide insights into related prior art
NEWS	9	FEB 19	Increase the precision of your patent queries -- use terms from the IPC Thesaurus, Version 2009.01
NEWS	10	FEB 23	Several formats for image display and print options discontinued in USPATFULL and USPAT2
NEWS	11	FEB 23	MEDLINE now offers more precise author group fields and 2009 MeSH terms
NEWS	12	FEB 23	TOXCENTER updates mirror those of MEDLINE - more precise author group fields and 2009 MeSH terms
NEWS	13	FEB 23	Three million new patent records blast AEROSPACE into STN patent clusters
NEWS	14	FEB 25	USGENE enhanced with patent family and legal status display data from INPADOCDB
NEWS	15	MAR 06	INPADOCDB and INPAFAMDB enhanced with new display formats
NEWS	16	MAR 11	EPFULL backfile enhanced with additional full-text applications and grants
NEWS	17	MAR 11	ESBIOBASE reloaded and enhanced
NEWS	18	MAR 20	CAS databases on STN enhanced with new super role for nanomaterial substances
NEWS	19	MAR 23	CA/CAPLUS enhanced with more than 250,000 patent equivalents from China
NEWS	20	MAR 30	IMSPATENTS reloaded and enhanced
NEWS	21	APR 03	CAS coverage of exemplified prophetic substances enhanced
NEWS	22	APR 07	STN is raising the limits on saved answers
NEWS	23	APR 24	CA/CAPLUS now has more comprehensive patent assignee information
NEWS	24	APR 26	USPATFULL and USPAT2 enhanced with patent assignment/reassignment information
NEWS	25	APR 28	CAS patent authority coverage expanded
NEWS	26	APR 28	ENCOMPLIT/ENCOMPLIT2 search fields enhanced
NEWS	27	APR 28	Limits doubled for structure searching in CAS REGISTRY
NEWS	28	MAY 08	STN Express, Version 8.4, now available
NEWS	29	MAY 11	STN on the Web enhanced

NEWS 30 MAY 11 BEILSTEIN substance information now available on
STN Easy
NEWS 31 MAY 14 DGENE, PCTGEN and USGENE enhanced with increased
limits for exact sequence match searches and
introduction of free HIT display format
NEWS 32 MAY 15 INPADOCDB and INPAFAMDB enhanced with Chinese legal
status data

NEWS EXPRESS JUNE 27 08 CURRENT WINDOWS VERSION IS V8.3,
AND CURRENT DISCOVER FILE IS DATED 06 APRIL 2009.

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 19:48:54 ON 21 MAY 2009

=> file reg		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.22	0.22

FILE 'REGISTRY' ENTERED AT 19:49:04 ON 21 MAY 2009
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STRUCTURE FILE UPDATES: 20 MAY 2009 HIGHEST RN 1147939-89-6
DICTIONARY FILE UPDATES: 20 MAY 2009 HIGHEST RN 1147939-89-6

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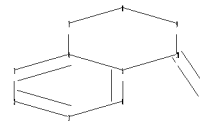
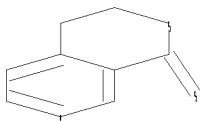
TSCA INFORMATION NOW CURRENT THROUGH January 9, 2009.

Please note that search-term pricing does apply when
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REGISTRY includes numerically searchable data for experimental and
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experimental property data in the original document. For information
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<http://www.cas.org/support/stngen/stndoc/properties.html>

=>
Uploading C:\Program Files\Stnexp\Queries\10585029.str



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chain nodes :
11
ring nodes :
1 2 3 4 5 6 7 8 9 10
chain bonds :
10-11
ring bonds :
1-2 1-6 2-3 3-4 4-5 4-7 5-6 5-10 7-8 8-9 9-10
exact/norm bonds :
4-7 5-10 7-8 8-9 9-10 10-11
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6
isolated ring systems :
containing 1 :
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G1:O,N

G2:O,S

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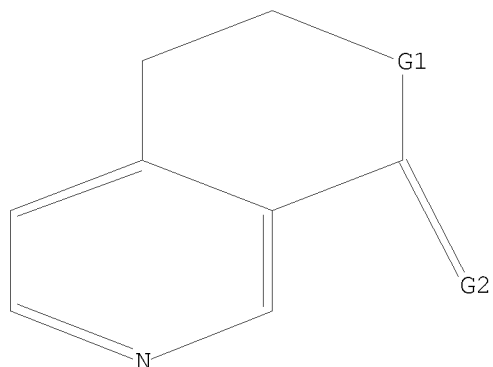
Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:CLASS
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L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



G1 O,N

G2 O,S

Structure attributes must be viewed using STN Express query preparation.

=> s l1 full

FULL SEARCH INITIATED 19:49:21 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 84387 TO ITERATE

100.0% PROCESSED 84387 ITERATIONS

384 ANSWERS

SEARCH TIME: 00.00.02

L2 384 SEA SSS FUL L1

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

185.88

186.10

FILE 'CAPLUS' ENTERED AT 19:49:26 ON 21 MAY 2009

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FILE COVERS 1907 - 21 May 2009 VOL 150 ISS 21

FILE LAST UPDATED: 20 May 2009 (20090520/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2009

CAPLUS now includes complete International Patent Classification (IPC)
reclassification data for the third quarter of 2008.

CAS Information Use Policies apply and are available at:

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This file contains CAS Registry Numbers for easy and accurate

=> s 12 full
L3 279 L2

=> file reg	SINCE FILE	TOTAL
COST IN U.S. DOLLARS	ENTRY	SESSION
FULL ESTIMATED COST	1.00	187.10

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STRUCTURE FILE UPDATES: 20 MAY 2009 HIGHEST RN 1147939-89-6
DICTIONARY FILE UPDATES: 20 MAY 2009 HIGHEST RN 1147939-89-6

New CAS Information Use Policies, enter HELP USAGETERMS for details.

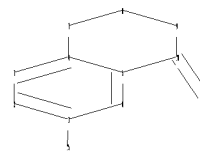
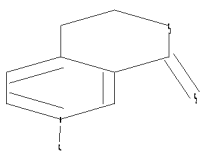
TSCA INFORMATION NOW CURRENT THROUGH January 9, 2009.

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

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Uploading C:\Program Files\Stnexp\Queries\10585029a.str



```

chain nodes :
11 15
ring nodes :
1 2 3 4 5 6 7 8 9 10
chain bonds :
1-15 10-11
ring bonds :
1-2 1-6 2-3 3-4 4-5 4-7 5-6 5-10 7-8 8-9 9-10
exact/norm bonds :
1-15 4-7 5-10 7-8 8-9 9-10 10-11
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6
isolated ring systems :
containing 1 :
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G1:O,N

G2:O,S

G3:H,CH3

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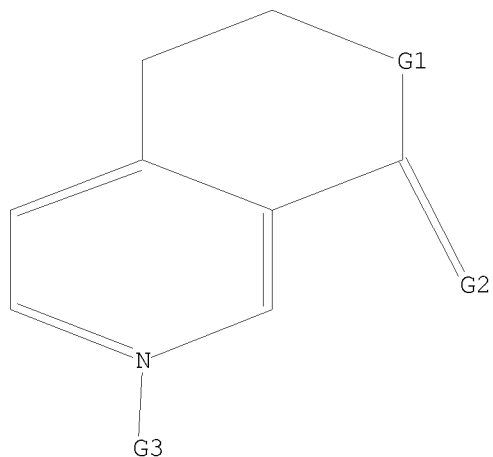
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11:CLASS 15:CLASS
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L4 STRUCTURE UPLOADED

=> d 14

L4 HAS NO ANSWERS

L4 STR



G1 O,N

G2 O,S

G3 H,Me

Structure attributes must be viewed using STN Express query preparation.

=> s 14 full

FULL SEARCH INITIATED 19:51:05 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 84387 TO ITERATE

100.0% PROCESSED 84387 ITERATIONS

76 ANSWERS

SEARCH TIME: 00.00.02

L5 76 SEA SSS FUL L4

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

185.88

372.98

FILE 'CAPLUS' ENTERED AT 19:51:11 ON 21 MAY 2009

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FILE COVERS 1907 - 21 May 2009 VOL 150 ISS 21
FILE LAST UPDATED: 20 May 2009 (20090520/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2009

CAPLUS now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

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=> s l5 full

L6 15 L5

=> d ibib abs hitstr tot

ACCESSION NUMBER: 2008:1244945 CAPLUS

DOCUMENT NUMBER: 149:478670

TITLE: A pharmaceutical compositions containing lactone type pyridine derivatives as an effective ingredient for the prevention and treatment of ischemia

INVENTOR(S): Cho, Yong-Baik; Lee, Junwon; Yi, Jung Bum; Lee, Nam Kyu; Lee, Bong-Yong; Hwang, Ki-Chul; Lim, Soyeon; Chang, Woochul; Chung, Ji Hyung; Lee, Byung Ho; Seo, Ho Won

PATENT ASSIGNEE(S): SK Chemicals Co., Ltd., S. Korea

SOURCE: PCT Int. Appl., 72pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2008123756	A1	20081016	WO 2008-KR2030	20080410
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RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

KR 2008091949 A 20081015 KR 2007-35075 20070410

PRIORITY APPLN. INFO.: KR 2007-35075 A 20070410

AB The present invention relates to a pharmaceutical composition comprising a lactone type pyridine derivative for the prevention and treatment of ischemic diseases, more particularly to a pharmaceutical composition for preventing and treating ischemic diseases comprising a lactone type pyridine derivative or a pharmaceutically acceptable salt thereof as an active ingredient, which provides superior cell-protecting effect and calcium homeostasis and HSP (heat shock protein) expression controlling effect.

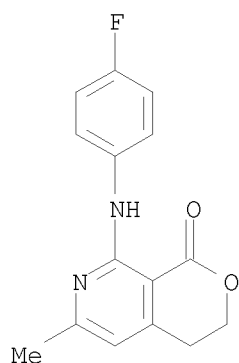
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RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (pharmaceutical compns. containing lactone type pyridine derivs. as an effective ingredient for prevention and treatment of ischemia)

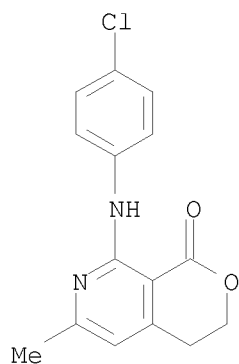
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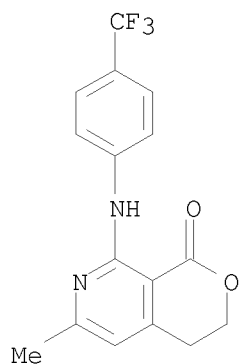
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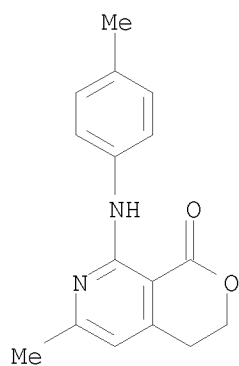


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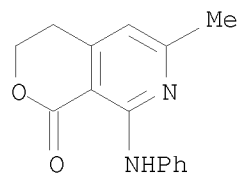
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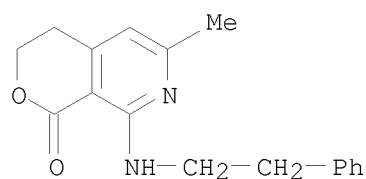
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RN 858119-87-6 CAPLUS
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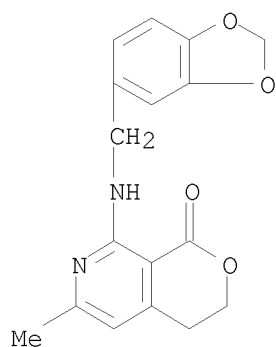


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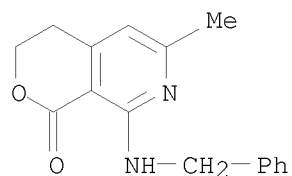
RN 858119-89-8 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-[(1,3-benzodioxol-5-ylmethyl)amino]-3,4-dihydro-6-methyl- (CA INDEX NAME)



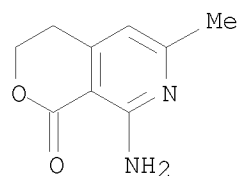
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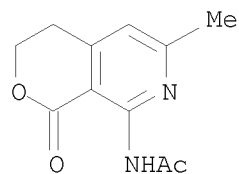
RN 858119-99-0 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-3,4-dihydro-6-methyl- (CA INDEX NAME)



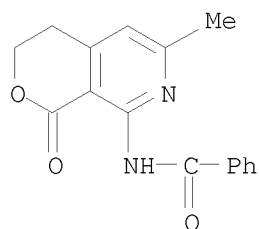
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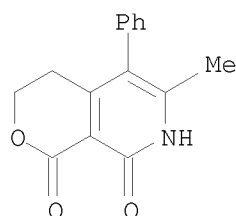
RN 858120-01-1 CAPLUS

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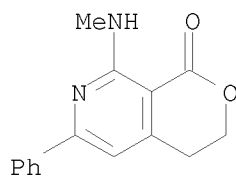
RN 858120-06-6 CAPLUS

CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 3,4-dihydro-6-methyl-5-phenyl-
(CA INDEX NAME)



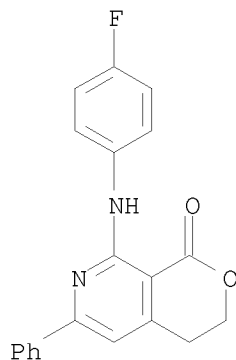
RN 858120-22-6 CAPLUS

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INDEX NAME)



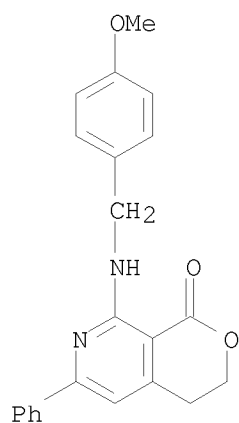
RN 858120-27-1 CAPLUS

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phenyl- (CA INDEX NAME)

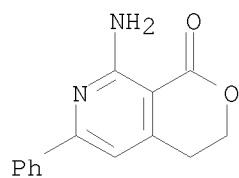


RN 858120-28-2 CAPLUS

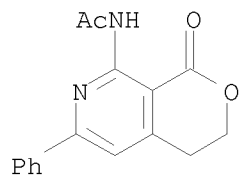
CN 1H-Pyrano[3,4-c]pyridine-1-one, 3,4-dihydro-8-[[4-(
methoxyphenyl)methyl]amino]-6-phenyl- (CA INDEX NAME)



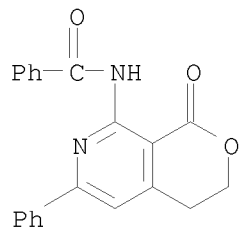
RN 858120-29-3 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-3,4-dihydro-6-phenyl- (CA INDEX NAME)



RN 858120-30-6 CAPLUS
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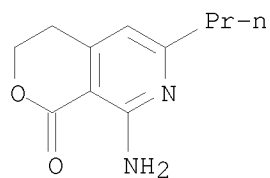


RN 858120-31-7 CAPLUS
 CN Benzamide, N-(3,4-dihydro-1-oxo-6-phenyl-1H-pyrano[3,4-c]pyridin-8-yl)- (CA INDEX NAME)



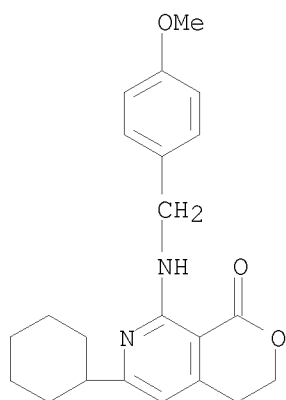
RN 858120-51-1 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-3,4-dihydro-6-propyl- (CA INDEX NAME)

NAME)



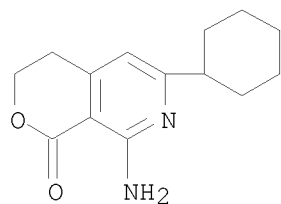
RN 858120-77-1 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-cyclohexyl-3,4-dihydro-8-[[4-methoxyphenyl)methyl]amino]- (CA INDEX NAME)



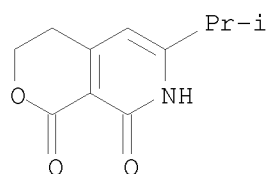
RN 858120-78-2 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-6-cyclohexyl-3,4-dihydro- (CA INDEX NAME)



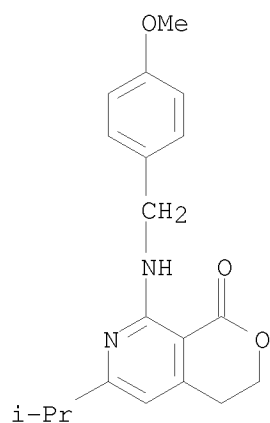
RN 858120-83-9 CAPLUS

CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 3,4-dihydro-6-(1-methylethyl)- (CA INDEX NAME)



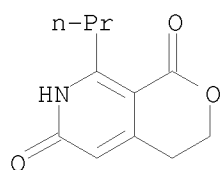
RN 858120-86-2 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-8-[[4-methoxyphenyl)methyl]amino]-6-(1-methylethyl)- (CA INDEX NAME)



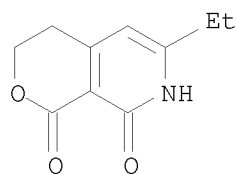
RN 858187-08-3 CAPLUS

CN 1H-Pyrano[3,4-c]pyridine-1,6(7H)-dione, 3,4-dihydro-8-propyl- (CA INDEX NAME)



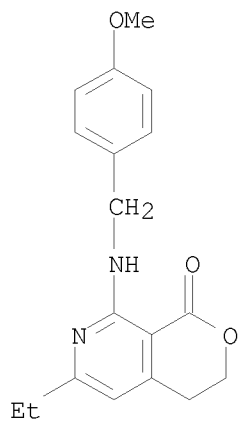
RN 1070913-29-9 CAPLUS

CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 6-ethyl-3,4-dihydro- (CA INDEX NAME)

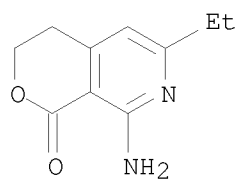


RN 1070913-32-4 CAPLUS

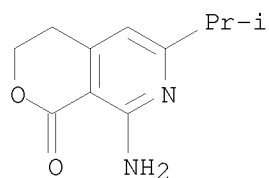
CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-ethyl-3,4-dihydro-8-[[4-methoxyphenyl)methyl]amino]- (CA INDEX NAME)



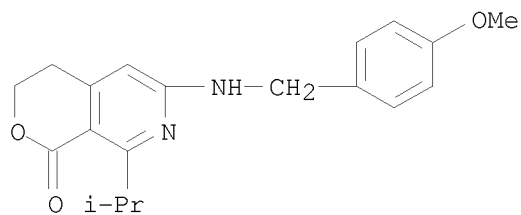
RN 1070913-33-5 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-6-ethyl-3,4-dihydro- (CA INDEX NAME)



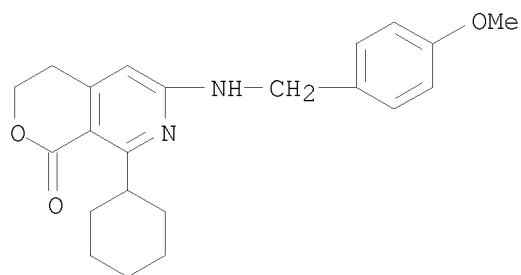
RN 1070913-35-7 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-3,4-dihydro-6-(1-methylethyl)- (CA INDEX NAME)



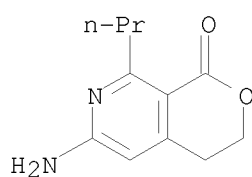
RN 1070913-45-9 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-6-[[4-methoxyphenyl)methyl]amino]-8-(1-methylethyl)- (CA INDEX NAME)



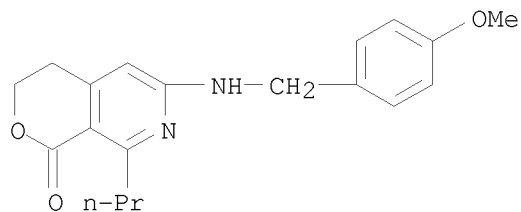
RN 1070913-48-2 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-cyclohexyl-3,4-dihydro-6-[[4-methoxyphenyl)methyl]amino]- (CA INDEX NAME)



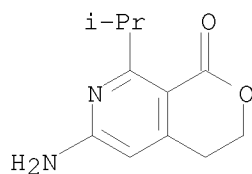
RN 1070913-52-8 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-amino-3,4-dihydro-8-propyl- (CA INDEX NAME)



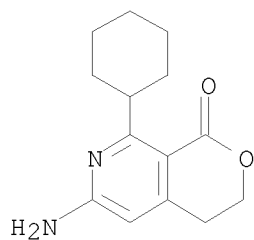
RN 1070913-53-9 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-6-[(4-methoxyphenyl)methyl]amino]-8-propyl- (CA INDEX NAME)



RN 1070913-54-0 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-amino-3,4-dihydro-8-(1-methylethyl)- (CA INDEX NAME)

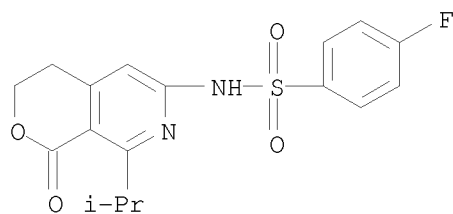


RN 1070913-55-1 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-amino-8-cyclohexyl-3,4-dihydro- (CA INDEX NAME)



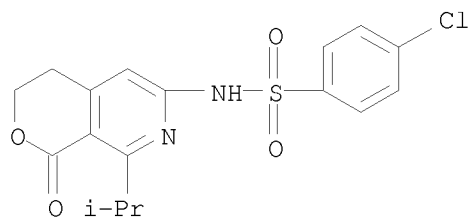
RN 1070913-56-2 CAPLUS

CN Benzenesulfonamide, N-[3,4-dihydro-8-(1-methylethyl)-1-oxo-1H-pyrano[3,4-c]pyridin-6-yl]-4-fluoro- (CA INDEX NAME)



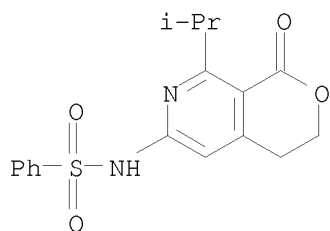
RN 1070913-57-3 CAPLUS

CN Benzenesulfonamide, 4-chloro-N-[3,4-dihydro-8-(1-methylethyl)-1-oxo-1H-pyrano[3,4-c]pyridin-6-yl]- (CA INDEX NAME)



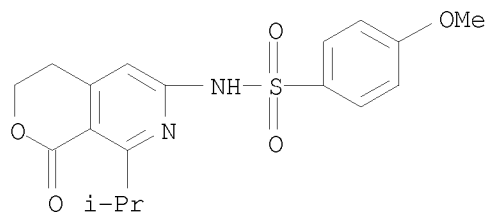
RN 1070913-58-4 CAPLUS

CN Benzenesulfonamide, N-[3,4-dihydro-8-(1-methylethyl)-1-oxo-1H-pyrano[3,4-c]pyridin-6-yl]- (CA INDEX NAME)



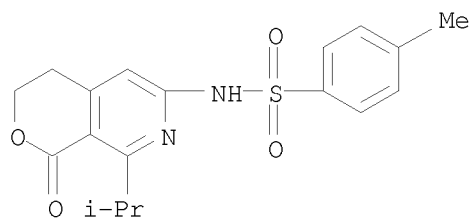
RN 1070913-59-5 CAPLUS

CN Benzenesulfonamide, N-[3,4-dihydro-8-(1-methylethyl)-1-oxo-1H-pyrano[3,4-c]pyridin-6-yl]-4-methoxy- (CA INDEX NAME)



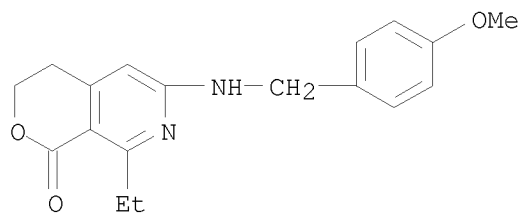
RN 1070913-60-8 CAPLUS

CN Benzenesulfonamide, N-[3,4-dihydro-8-(1-methylethyl)-1-oxo-1H-pyrano[3,4-c]pyridin-6-yl]-4-methyl- (CA INDEX NAME)



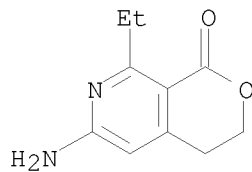
RN 1070913-79-9 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-ethyl-3,4-dihydro-6-[[4-methoxyphenyl)methyl]amino]- (CA INDEX NAME)



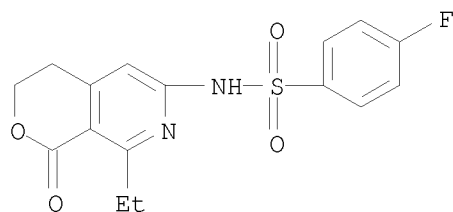
RN 1070913-80-2 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-amino-8-ethyl-3,4-dihydro- (CA INDEX NAME)



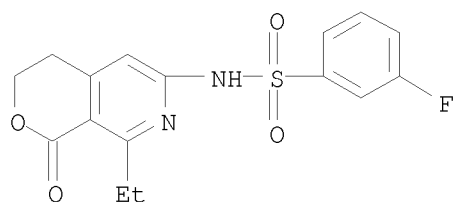
RN 1070913-81-3 CAPLUS

CN Benzenesulfonamide, N-(8-ethyl-3,4-dihydro-1-oxo-1H-pyrano[3,4-c]pyridin-6-yl)-4-fluoro- (CA INDEX NAME)



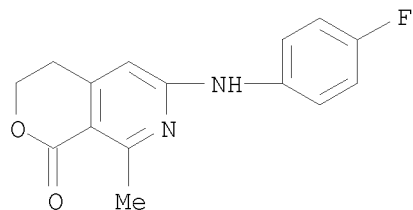
RN 1070913-82-4 CAPLUS

CN Benzenesulfonamide, N-(8-ethyl-3,4-dihydro-1-oxo-1H-pyrano[3,4-c]pyridin-6-yl)-3-fluoro- (CA INDEX NAME)



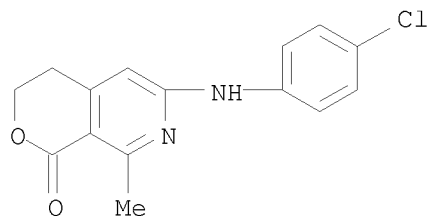
RN 1070913-97-1 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-[(4-fluorophenyl)amino]-3,4-dihydro-8-methyl- (CA INDEX NAME)



RN 1070913-98-2 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-[(4-chlorophenyl)amino]-3,4-dihydro-8-methyl- (CA INDEX NAME)



REFERENCE COUNT:

2

THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:262396 CAPLUS

DOCUMENT NUMBER: 146:481960

TITLE: A Novel Lumazine Synthase Inhibitor Derived from Oxidation of 1,3,6,8-Tetrahydroxy-2,7-naphthyridine to a Tetraazaperylenehexaone Derivative

AUTHOR(S): Zhang, Yanlei; Illarionov, Boris; Bacher, Adelbert; Fischer, Markus; Georg, Gunda I.; Ye, Qi-Zhuang; Vander Velde, David; Fanwick, Phillip E.; Song, Yunlong; Cushman, Mark

CORPORATE SOURCE: Department of Medicinal Chemistry and Molecular Pharmacology, School of Pharmacy and Pharmaceutical Sciences, and The Purdue Cancer Center, Purdue University, West Lafayette, IN, 47907, USA

SOURCE: Journal of Organic Chemistry (2007), 72(8), 2769-2776
CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 146:481960

AB Air oxidation of 1,3,6,8-tetrahydroxy-2,7-naphthyridine afforded 2,5,8,11-tetraaza-5,11-dihydro-4,10-dihydroxyperylene-1,3,6,7,9,12-hexaone. X-Ray crystallog. of the product revealed that it exists in the meso form in the solid state. The mechanism of product formation most likely involves oxidative phenolic coupling and oxidation. The product proved to be a competitive inhibitor of *Schizosaccharomyces pombe* lumazine synthase with a K_i of $66 \pm 13 \mu\text{M}$ in Tris buffer and $22 \pm 4 \mu\text{M}$ in phosphate buffer. This is significantly more potent than the naphthyridine reactant (K_i $350 \pm 76 \mu\text{M}$, competitive inhibition), which had previously been identified as a lumazine synthase inhibitor by high-throughput screening. Ab initio calcns. indicate that the meso form is slightly less stable than the enantiomeric form, and that the two forms interconvert rapidly at room temperature

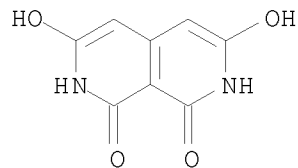
IT 53162-08-6P

RL: PAC (Pharmacological activity); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)

(preparation of tetraazaperylenehexaone by aerial oxidation of tetrahydroxynaphthyridine as lumazine synthase inhibitor and its conformational and mol. docking studies)

RN 53162-08-6 CAPLUS

CN 2,7-Naphthyridine-1,8(2H,7H)-dione, 3,6-dihydroxy- (CA INDEX NAME)



REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:612303 CAPLUS

DOCUMENT NUMBER: 143:133284

TITLE: Preparation of pyridines as inhibitors of cytokine production and pharmaceutical compositions containing them useful in the treatment of pain and inflammatory and immune diseases

INVENTOR(S): Kim, Hyung Ook; Lee, Nam Kyu; Kim, Joo Hyon; Rhee, Hae In; Cho, Yong-Baik; Ryu, Je Ho; Kim, Nam Ho; Ryu, Keun Ho; Yi, Jung Bum; Jung, Jae Yoon

PATENT ASSIGNEE(S): SK Chemicals, Co. Ltd., S. Korea

SOURCE: PCT Int. Appl., 119 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

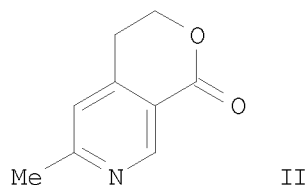
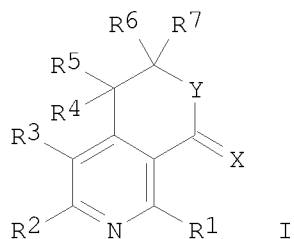
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2005063768	A1	20050714	WO 2004-KR3545	20041230
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RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2004309303	A1	20050714	AU 2004-309303	20041230
CA 2552207	A1	20050714	CA 2004-2552207	20041230
EP 1706412	A1	20061004	EP 2004-808673	20041230
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS				
CN 1938315	A	20070328	CN 2004-80041948	20041230
BR 2004018301	A	20070502	BR 2004-18301	20041230
JP 2007517024	T	20070628	JP 2006-546849	20041230
IN 2006DN03779	A	20070622	IN 2006-DN3779	20060630
US 20070254909	A1	20071101	US 2007-585029	20070416
PRIORITY APPLN. INFO.:			KR 2003-100132	A 20031230
			WO 2004-KR3545	W 20041230

OTHER SOURCE(S): CASREACT 143:133284; MARPAT 143:133284

GI



AB The invention is related to novel pyridine derivs. I [wherein R1-R7 = independently H, halo, CN, NO2, acyl, OH, low alkyl, etc.; X = O, S; Y = O, NH and derivs.] and their pharmaceutically acceptable salts having an inhibitory effect on production of cytokines, which are involved in inflammatory responses, and being used as antiinflammatory and analgesic agents. For example, II was prepared by cyclization of 4-(2-hydroxyethyl)-6-methylnicotinonitrile (preparation given) in the presence of concentrated HCl. I showed excellent inhibitory effects on the production

of TNF- α , IL-1 α , IL-6, INF- γ , PGE2. I have shown superiorities in antiinflammatory and analgesic effects over Indomethacin and Celecoxib. Thus, I are useful for treating inflammation and immune diseases.

IT 858119-67-2P, 8-Hydroxy-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858119-98-9P 858119-99-0P,
 8-Amino-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858120-15-7P, 8-Hydroxy-6-phenyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858120-28-2P, 8-(4-Methoxybenzylamino)-6-phenyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858120-29-3P,
 8-Amino-6-phenyl-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858120-43-1P, 8-Hydroxy-6-propyl-3,4-dihydropyrano[3,4-c]pyridin-1-one hydrochloride 858120-44-2P,
 6-Hydroxy-8-propyl-3,4-dihydropyrano[3,4-c]pyridin-1-one hydrochloride 858120-50-0P, 8-(4-Methoxybenzylamino)-6-(n-propyl)-3,4-dihydropyrano[3,4-c]pyridin-1-one 858120-51-1P,
 8-Amino-6-(n-propyl)-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858120-73-7P, 6-Cyclohexyl-8-hydroxy-3,4-dihydropyrano[3,4-c]pyridin-1-one 858120-77-1P,
 6-Cyclohexyl-8-(4-methoxybenzylamino)-3,4-dihydropyrano[3,4-c]pyridin-1-one 858120-83-9P, 8-Hydroxy-6-isopropyl-3,4-dihydropyrano[3,4-c]pyridin-1-one

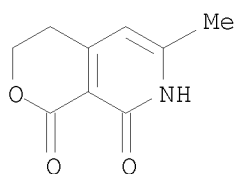
RL: PAC (Pharmacological activity); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(drug candidate; preparation of cytokine production-inhibiting pyridine derivs.

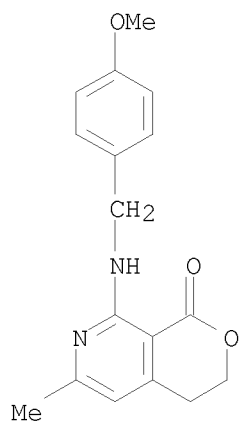
useful in treating pain and inflammatory and immune diseases)

RN 858119-67-2 CAPLUS

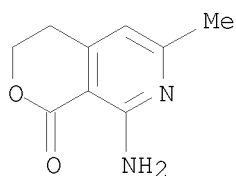
CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 3,4-dihydro-6-methyl- (CA INDEX NAME)



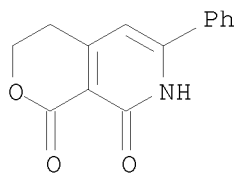
RN 858119-98-9 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-8-[[(4-methoxyphenyl)methyl]amino]-6-methyl- (CA INDEX NAME)



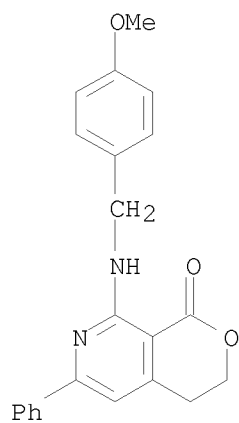
RN 858119-99-0 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-3,4-dihydro-6-methyl- (CA INDEX NAME)



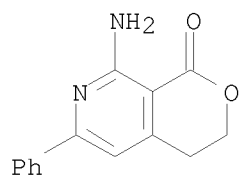
RN 858120-15-7 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 3,4-dihydro-6-phenyl- (CA INDEX NAME)



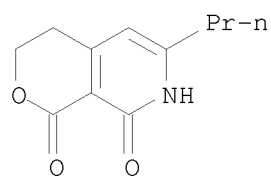
RN 858120-28-2 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-8-[[(4-methoxyphenyl)methyl]amino]-6-phenyl- (CA INDEX NAME)



RN 858120-29-3 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-3,4-dihydro-6-phenyl- (CA INDEX NAME)

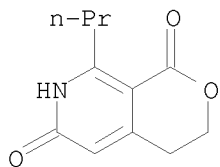


RN 858120-43-1 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 3,4-dihydro-6-propyl-, hydrochloride (1:1) (CA INDEX NAME)



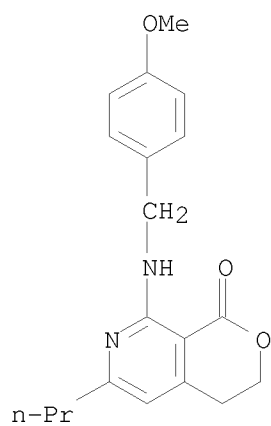
● HCl

RN 858120-44-2 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,6(7H)-dione, 3,4-dihydro-8-propyl-, hydrochloride (1:1) (CA INDEX NAME)

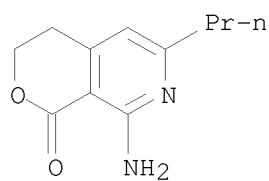


● HCl

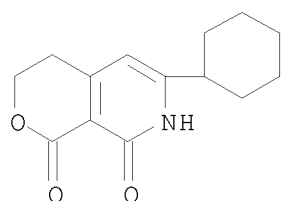
RN 858120-50-0 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-8-[(4-methoxyphenyl)methyl]amino]-6-propyl- (CA INDEX NAME)



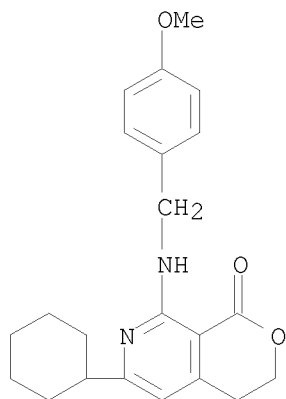
RN 858120-51-1 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-3,4-dihydro-6-propyl- (CA INDEX NAME)



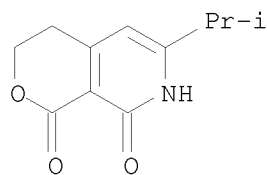
RN 858120-73-7 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 6-cyclohexyl-3,4-dihydro- (CA INDEX NAME)



RN 858120-77-1 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 6-cyclohexyl-3,4-dihydro-8-[[(4-methoxyphenyl)methyl]amino]- (CA INDEX NAME)



RN 858120-83-9 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 3,4-dihydro-6-(1-methylethyl)- (CA INDEX NAME)



IT 858119-64-9P, 6,8-Dihydroxy-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858119-82-1P, 8-(4-Fluorophenylamino)-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858119-84-3P,
 8-(4-Chlorophenylamino)-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858119-85-4P, 8-[(4-Trifluoromethylphenyl)amino]-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858119-86-5P,
 6-Methyl-8-(p-tolylamino)-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858119-87-6P, 6-Methyl-8-phenylamino-3,4-dihydropyrano[3,4-c]pyridin-1-one 858119-88-7P,
 6-Methyl-8-[(2-phenylethyl)amino]-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858119-89-8P, 8-[(Benzodioxol-5-ylmethyl)amino]-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858119-97-8P,
 8-Benzylamino-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858120-00-0P, 8-Acetamido-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858120-01-1P, N-(1-Oxo-6-methyl-3,4-dihydropyrano[3,4-c]pyridin-8-yl)benzamide 858120-06-6P,
 8-Hydroxy-6-methyl-5-phenyl-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858120-22-6P, 8-Methylamino-6-phenyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858120-27-1P,
 8-(4-Fluorophenylamino)-6-phenyl-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858120-30-6P, 8-Acetamido-6-phenyl-3,4-dihydropyrano[3,4-c]pyridin-1-one 858120-31-7P, N-(1-Oxo-6-phenyl-3,4-dihydropyrano[3,4-c]pyridin-8-yl)benzamide 858120-34-0P,
 6-Hydroxy-8-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one hydrochloride
 858120-52-2P, N-[1-Oxo-6-(n-propyl)-3,4-dihydro-1H-pyrano[3,4-c]pyridin-8-yl]acetamide 858120-78-2P,
 8-Amino-6-cyclohexyl-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858120-86-2P, 6-Isopropyl-8-(4-methoxybenzylamino)-3,4-

dihydropyrano[3,4-c]pyridin-1-one 858120-87-3P,
 6-Hydroxy-8-methyl-3,4-dihydropyrano[3,4-c]pyridin-1-one
 858120-88-4P, 8-Hydroxy-6-(n-propyl)-3,4-dihydropyrano[3,4-
 c]pyridin-1-one

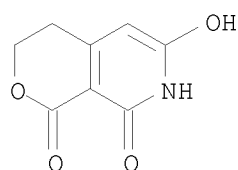
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU
 (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES
 (Uses)

(drug candidate; preparation of cytokine production-inhibiting pyridine
 derivs.

useful in treating pain and inflammatory and immune diseases)

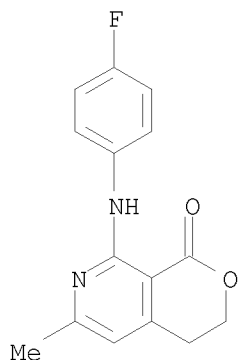
RN 858119-64-9 CAPLUS

CN 1H-Pyrano[3,4-c]pyridine-1,6(7H)-dione, 3,4-dihydro-8-hydroxy- (CA INDEX
 NAME)



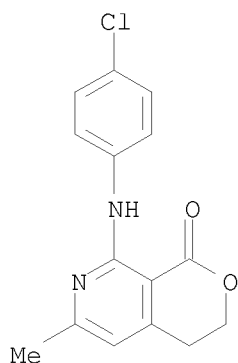
RN 858119-82-1 CAPLUS

CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-[(4-fluorophenyl)amino]-3,4-dihydro-6-
 methyl- (CA INDEX NAME)

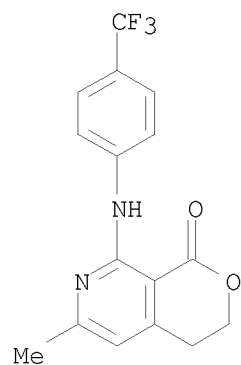


RN 858119-84-3 CAPLUS

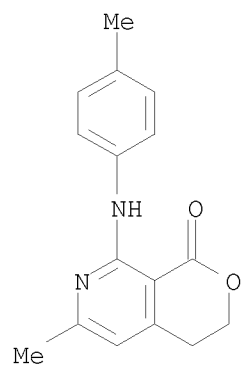
CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-[(4-chlorophenyl)amino]-3,4-dihydro-6-
 methyl- (CA INDEX NAME)



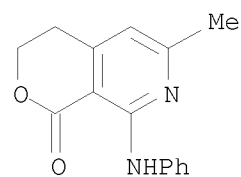
RN 858119-85-4 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-6-methyl-8-[[4-(trifluoromethyl)phenyl]amino]- (CA INDEX NAME)



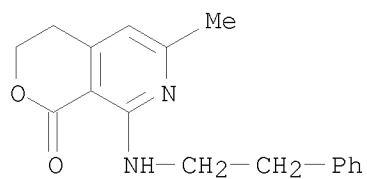
RN 858119-86-5 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-6-methyl-8-[(4-methylphenyl)amino]- (CA INDEX NAME)



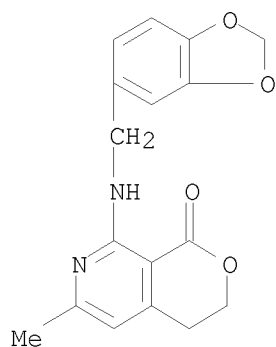
RN 858119-87-6 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-6-methyl-8-(phenylamino)- (CA INDEX NAME)



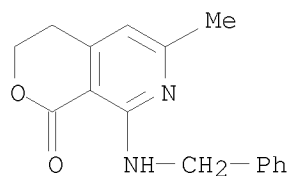
RN 858119-88-7 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-6-methyl-8-[(2-phenylethyl)amino]- (CA INDEX NAME)



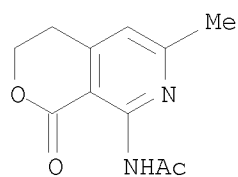
RN 858119-89-8 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-[(1,3-benzodioxol-5-ylmethyl)amino]-3,4-dihydro-6-methyl- (CA INDEX NAME)



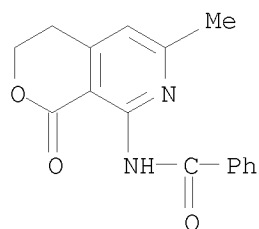
RN 858119-97-8 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-6-methyl-8-[(phenylmethyl)amino]- (CA INDEX NAME)



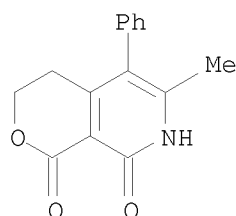
RN 858120-00-0 CAPLUS
 CN Acetamide, N-(3,4-dihydro-6-methyl-1-oxo-1H-pyrano[3,4-c]pyridin-8-yl)- (CA INDEX NAME)



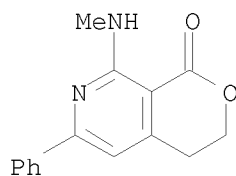
RN 858120-01-1 CAPLUS
 CN Benzamide, N-(3,4-dihydro-6-methyl-1-oxo-1H-pyrano[3,4-c]pyridin-8-yl)- (CA INDEX NAME)



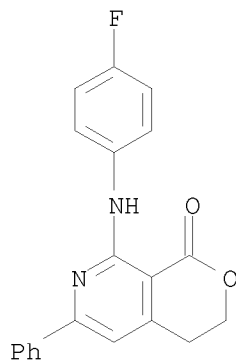
RN 858120-06-6 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 3,4-dihydro-6-methyl-5-phenyl-
 (CA INDEX NAME)



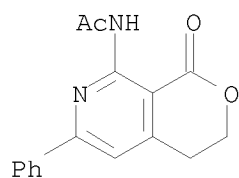
RN 858120-22-6 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1-one, 3,4-dihydro-8-(methylamino)-6-phenyl- (CA
 INDEX NAME)



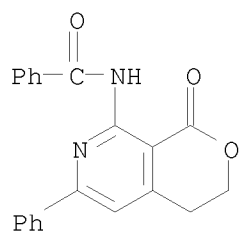
RN 858120-27-1 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1-one, 8-[(4-fluorophenyl)amino]-3,4-dihydro-6-
 phenyl- (CA INDEX NAME)



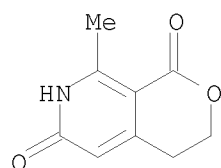
RN 858120-30-6 CAPLUS
 CN Acetamide, N-(3,4-dihydro-1-oxo-6-phenyl-1H-pyrano[3,4-c]pyridin-8-yl)-
 (CA INDEX NAME)



RN 858120-31-7 CAPLUS
 CN Benzamide, N-(3,4-dihydro-1-oxo-6-phenyl-1H-pyrano[3,4-c]pyridin-8-yl)-
 (CA INDEX NAME)

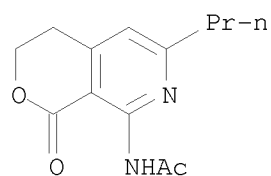


RN 858120-34-0 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,6(7H)-dione, 3,4-dihydro-8-methyl-,
 hydrochloride (1:1) (CA INDEX NAME)

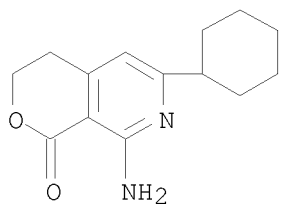


● HCl

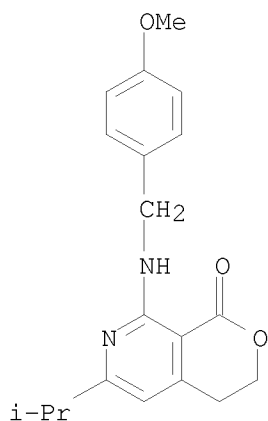
RN 858120-52-2 CAPLUS
 CN Acetamide, N-(3,4-dihydro-1-oxo-6-propyl-1H-pyrano[3,4-c]pyridin-8-yl)-
 (CA INDEX NAME)



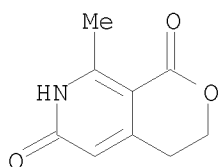
RN 858120-78-2 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 8-amino-6-cyclohexyl-3,4-dihydro- (CA
 INDEX NAME)



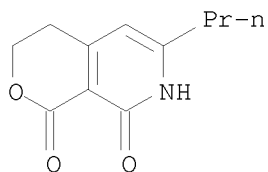
RN 858120-86-2 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridin-1-one, 3,4-dihydro-8-[[4-methoxyphenyl)methyl]amino]-6-(1-methylethyl)- (CA INDEX NAME)



RN 858120-87-3 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,6(7H)-dione, 3,4-dihydro-8-methyl- (CA INDEX NAME)



RN 858120-88-4 CAPLUS
 CN 1H-Pyrano[3,4-c]pyridine-1,8(7H)-dione, 3,4-dihydro-6-propyl- (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:41677 CAPLUS

DOCUMENT NUMBER: 138:337967

TITLE: Studies with alkylheterocycles: novel synthesis of functionally substituted isoquinoline and pyridopyridine derivatives

AUTHOR(S): Elmaati, Tarek M. Abu; El-Taweel, Fathy M. A.

CORPORATE SOURCE: Faculty of Specific Education, New Damietta, Mansoura University, Egypt

SOURCE: Journal of the Chinese Chemical Society (Taipei, Taiwan) (2002), 49(6), 1045-1050
CODEN: JCCTAC; ISSN: 0009-4536

PUBLISHER: Chinese Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:337967

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

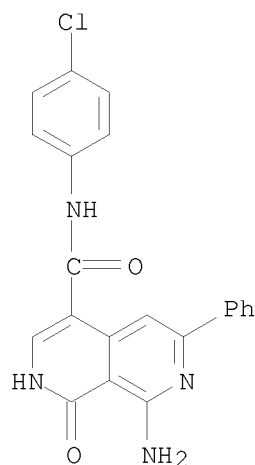
AB Reaction of cyanopyridinone I with cinnamonnitriles gave isoquinolines such as II [R = (un)substituted phenyl]. Treating I with elemental sulfur yielded thienopyridine III. III reacted with acrylonitrile to give isoquinoline II (R = H). II (R = H) was also prepared from I and methylenemalononitrile. Condensation of I with benzaldehyde, followed by treatment with NH₄OH or AcOH/HCl gave pyridopyridine IV or V.

IT 517907-24-3P 517907-25-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
(conversion of cyanopyridinone derivative to isoquinolinones, thienopyridinone, and pyridopyridines by reactions with unsatd. nitriles, sulfur, or benzaldehyde)

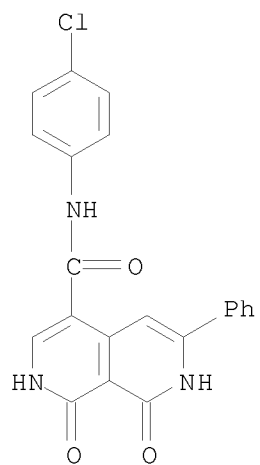
RN 517907-24-3 CAPLUS

CN 2,7-Naphthyridine-4-carboxamide, 8-amino-N-(4-chlorophenyl)-1,2-dihydro-1-oxo-6-phenyl- (CA INDEX NAME)



RN 517907-25-4 CAPLUS

CN 2,7-Naphthyridine-4-carboxamide, N-(4-chlorophenyl)-1,2,7,8-tetrahydro-1,8-dioxo-6-phenyl- (CA INDEX NAME)



REFERENCE COUNT:

7

THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:501464 CAPLUS
DOCUMENT NUMBER: 137:352926
TITLE: 1-(N,N-dimethylamino)-2-(N-phenylcarbamoyl)-1-buten-3-one as a building block for the synthesis of heterocyclic compounds
AUTHOR(S): Elmaati, T. A.; Said, S.; Elenein, N. A.; Sofan, M.; Khodeir, N.
CORPORATE SOURCE: Faculty of Specific Education, Mansoura University, New Damietta, Egypt
SOURCE: Polish Journal of Chemistry (2002), 76(7), 945-952
CODEN: PJCHDQ; ISSN: 0137-5083
PUBLISHER: Polish Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:352926

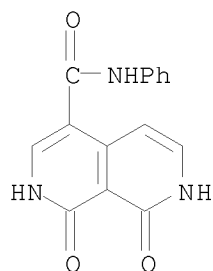
AB Acetoacetanilide reacted with DMF-DMA to give the enaminone MeCOC(:CHNMe₂)CONHPh (I). I, when treated with hydrazines, gives pyrazoles, resp., and with pyrazole derivs. the pyrazolopyrimidines. On the other hand, in reaction of I with benzimidazole and benzimidazole-2-acetonitrile, pyrimidobenzimidazole and the pyridobenzimidazole were formed. I reacts with hippuric acid in boiling acetic anhydride to afford a pyridine derivative. In the reaction of I with malononitrile, cyanoacetamide or malononitrile dimer compds. were formed.

IT 474369-52-3P

RL: SPN (Synthetic preparation); PREP (Preparation)
(use of (N,N-dimethylamino)(N-phenylcarbamoyl)butenone as a building block for the synthesis of heterocyclic compds.)

RN 474369-52-3 CAPLUS

CN 2,7-Naphthyridine-4-carboxamide, 1,2,7,8-tetrahydro-1,8-dioxo-N-phenyl-
(CA INDEX NAME)

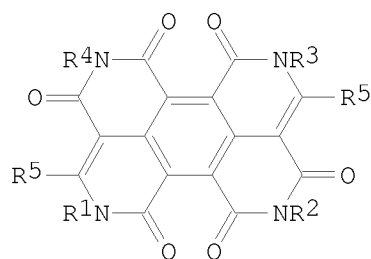


REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

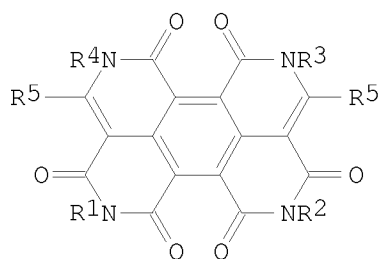
L6 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1992:61571 CAPLUS
DOCUMENT NUMBER: 116:61571
ORIGINAL REFERENCE NO.: 116:10627a,10630a
TITLE: Heterocyclic compounds and their use as dyes and pigments
INVENTOR(S): Hoechstetter, Hans
PATENT ASSIGNEE(S): Bayer A.-G., Germany
SOURCE: Ger. Offen., 18 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3937633	A1	19910516	DE 1989-3937633	19891111
US 5097027	A	19920317	US 1990-593460	19901005
EP 427993	A2	19910522	EP 1990-120651	19901027
EP 427993	A3	19920122		
R: CH, DE, FR, GB, LI				
JP 03181567	A	19910807	JP 1990-299089	19901106
PRIORITY APPLN. INFO.:			DE 1989-3937633	A 19891111
OTHER SOURCE(S):	MARPAT 116:61571			
GI				



I



II

AB The dyes and pigments are I and II (R₁-R₄ = H, alkyl, cycloalkyl, aryl, aralkyl, heteroaryl; R₅ = halogen, NR₁R₂, SR₁, OR₁, aryl, heteroaryl, OX; X = cation; when R-R₄ = H, R₅ ≠ OH, ONa). Thus, 29 g 2,7-naphthyridine-1,3,6,8-tetraol di-Na salt in 90 mL MeC₆H₄SO₃Me was heated 12.5 h at 190°, cooled to 100°, and precipitated in MeOH to give 23 g I-II mixture (R₁-R₄ = Me; R₅ = OH) (III). III was a reddish violet pigment with good migration resistance.

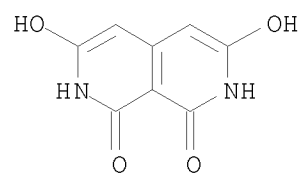
IT 137219-69-3

RL: USES (Uses)

(alkylation-dimerization of, in manufacture of pigments and dyes)

RN 137219-69-3 CAPLUS

CN 2,7-Naphthyridine-1,8(2H,7H)-dione, 3,6-dihydroxy-, sodium salt (1:2) (CA INDEX NAME)



● 2 Na

L6 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1974:437490 CAPLUS

DOCUMENT NUMBER: 81:37490

ORIGINAL REFERENCE NO.: 81:6003a,6006a

TITLE: Condensation of dicarbonyl compounds with malononitrile. VIII. Condensation of malononitrile with some esters of β -keto acids

AUTHOR(S): Gudriniece, E.; Rigerte, B.

CORPORATE SOURCE: Rzh. Politekh. Inst., Riga, USSR

SOURCE: Latvijas PSR Zinatnu Akademijas Vestis, Kimijas Serija (1974), (2), 239-40
CODEN: LZAKAM; ISSN: 0002-3248

DOCUMENT TYPE: Journal

LANGUAGE: Russian

GI For diagram(s), see printed CA Issue.

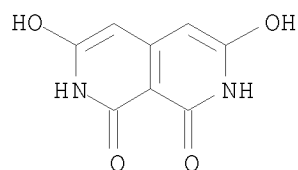
AB Nicotinonitriles I (R = Me, Ph) were obtained in 56% and 20% yields, resp., by condensing malononitrile with $\text{RCOCH}_2\text{CO}_2\text{Et}$ to give intermediate $\text{RC}(\text{CH}_2\text{CO}_2\text{Et})\text{:C}(\text{CN})_2$ which were cyclized by 70% HClO_4 . Analogously obtained was 77% naphthyridine II from malononitrile and $(\text{EtO}_2\text{CCH}_2)_2\text{CO}$.

IT 53162-08-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 53162-08-6 CAPLUS

CN 2,7-Naphthyridine-1,8(2H,7H)-dione, 3,6-dihydroxy- (CA INDEX NAME)



L6 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1973:466219 CAPLUS
DOCUMENT NUMBER: 79:66219
ORIGINAL REFERENCE NO.: 79:10699a,10702a
TITLE: Simple synthesis of
1-hydroxy-3-naphthyridinecarboxylic acid
AUTHOR(S): Trommer, Wolfgang; Blume, Heinrich
CORPORATE SOURCE: Abt. Chem., Ruhr Univ., Bochum, Fed. Rep. Ger.
SOURCE: Tetrahedron Letters (1973), (17), 1447-8
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: German

GI For diagram(s), see printed CA Issue.

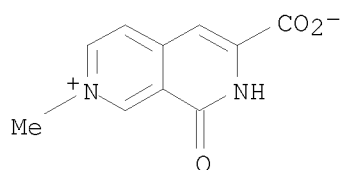
AB Condensation of 3-cyano-4-methylpyridine (prepared by heating the 3-bromo analog with CuCN) with (CO₂Et)₂ using Me₃COK as base gave the cyano ester (I) which gave the title compound (II) on hydrolysis. The 7-Me analog of II was prepared in 80% yield by 1,4-addition of MeCOCO₂H to N-methylnicotinamide chloride followed by oxidation with p-ONC₆H₄NMe₂ or (Cl₃C)₂CO.

IT 42285-32-5P 42285-33-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

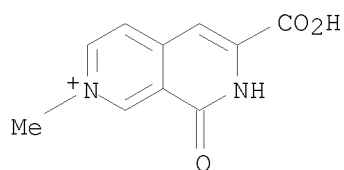
RN 42285-32-5 CAPLUS

CN 2,7-Naphthyridinium, 6-carboxy-7,8-dihydro-2-methyl-8-oxo-, inner salt
(CA INDEX NAME)



RN 42285-33-6 CAPLUS

CN 2,7-Naphthyridinium, 6-carboxy-7,8-dihydro-2-methyl-8-oxo-, chloride (1:1)
(CA INDEX NAME)



● Cl⁻

L6 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

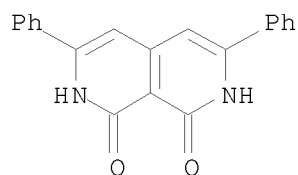
ACCESSION NUMBER: 1970:435253 CAPLUS
DOCUMENT NUMBER: 73:35253
ORIGINAL REFERENCE NO.: 73:5841a,5844a
TITLE: Reactions of some 4-methylene-4H-pyran derivatives
with primary and secondary amines
AUTHOR(S): Van Allan, James A.; Reynolds, George Arthur;
Petropoulos, C. C.; Maier, D. P.
CORPORATE SOURCE: Res. Lab., Eastman Kodak Co., Rochester, NY, USA
SOURCE: Journal of Heterocyclic Chemistry (1970), 7(3),
495-507
CODEN: JHTCAD; ISSN: 0022-152X
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 73:35253

AB 4-Dicyanomethylene-4H-pyrans react with secondary amines to give
2-aminopyridine and 2-pyridone derivs., which, in turn, were used to prepare
copyrine derivatives. These pyrans and pyrimary amines gave copyrine and
iminopyridone derivatives in addition to
dicyanomethylene-1,4-dihydropyridines. Reaction of
cyanocarbamoylmethylene-4H-pyrans with secondary amines gave 2-pyrones,
and with primary amines, gave copyrines and 1,4-dihydropyridine derivs.

IT 27337-84-4P 27337-98-0P 27338-00-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

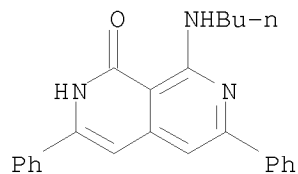
RN 27337-84-4 CAPLUS

CN 2,7-Naphthyridine-1,8(2H,7H)-dione, 3,6-diphenyl- (CA INDEX NAME)



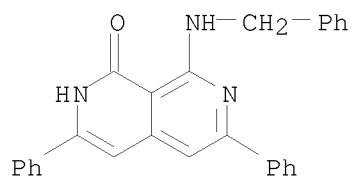
RN 27337-98-0 CAPLUS

CN 2,7-Naphthyridin-1(2H)-one, 8-(butylamino)-3,6-diphenyl- (CA INDEX NAME)



RN 27338-00-7 CAPLUS

CN 2,7-Naphthyridin-1(2H)-one, 3,6-diphenyl-8-[(phenylmethyl)amino]- (CA INDEX NAME)



L6 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1966:11376 CAPLUS

DOCUMENT NUMBER: 64:11376

ORIGINAL REFERENCE NO.: 64:2046c-d

TITLE: Condensations of carbonyl compounds at the methyl or α -methylene group of 6- or

4-alkyl-3-cyano-2(1)-pyridones through dianions

AUTHOR(S): Boatman, Sandra; Harris, Thomas M.; Hauser, Charles R.

CORPORATE SOURCE: Duke Univ., Durham, NC

SOURCE: Journal of the American Chemical Society (1965), 87(22), 5198-202

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 64:11376

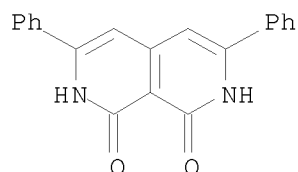
AB Several types of condensations of carbonyl compds. at the methyl or methylene group of 6- or 4-alkyl-3-cyano-2(1)-pyridones were effected through dianions, which were prepared by means of 2 mole-equivs. of potassium amide in liquid ammonia. The types of condensations realized were arylation with methyl benzoate, acylation with ethyl oxalate, carbonyl addition with benzophenone or benzaldehyde, and conjugate addition with chalcone. One of the benzoyl derivs. was converted by polyphosphoric acid to the corresponding amide and another to a dihydroxy-2,7-naphthyridine. The carbonyl addition products were dehydrated or converted to another derivative. Consideration is given to possible extensions of the method.

IT 27337-84-4P, 2,7-Naphthyridine-1,8-diol, 3,6-diphenyl-

RL: PREP (Preparation)
(preparation of)

RN 27337-84-4 CAPLUS

CN 2,7-Naphthyridine-1,8(2H,7H)-dione, 3,6-diphenyl- (CA INDEX NAME)

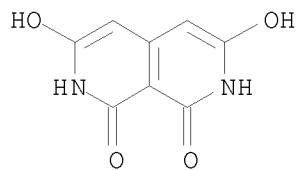


ACCESSION NUMBER: 1961:13414 CAPLUS
DOCUMENT NUMBER: 55:13414
ORIGINAL REFERENCE NO.: 55:2640b-f
TITLE: Some derivatives of 2,7-naphthyridine
AUTHOR(S): Ferrier, B. M.; Campbell, Neil
CORPORATE SOURCE: Univ. Edinburgh, UK
SOURCE: Journal of the Chemical Society (1960) 3513-15
CODEN: JCSOA9; ISSN: 0368-1769
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

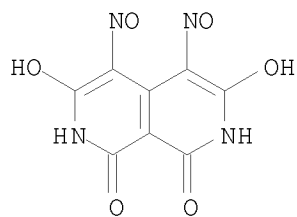
AB The synthesis of some 2,7-naphthyridine derivs. was described. $\text{CH}_2(\text{CN})_2$ (1 g.) kept 19 days with 3 g. $\text{CO}(\text{CH}_2\text{CO}_2\text{Et})_2$ in 25 ml. alc. containing 4 drops NH_4Et gave 2.6 g. di-Et β -(dicyanomethylene)glutarate, yellow needles, m. 166° (C_6H_6). $\text{CH}_2(\text{CN})_2$ (1.1 g.) was condensed with $\text{CO}(\text{CH}_2\text{CO}_2\text{Et})_2$ as above; after 24 hrs. no ketone could be detected and after a further 24 hrs. the solvent removed, the residue warmed 30 sec. with 20 ml. 70% H_2SO_4 , then refluxed 30 sec., cooled, and poured into 60 ml. H_2O gave 2.7 g. 1,3,6,8-tetrahydroxy-2,7-naphthyridine (I), m. above 350° ; dibenzoate m. $234-9^\circ$; dinitroso compound m. above 350° . I (1 g.) heated 24 hrs. at 180° in a sealed tube with 10 ml. POCl_3 , the mixture poured on 150 g. ice, made alkaline, and extracted with Et_2O gave 0.5 g. 1,3,6,8-tetrachloro-2,7-naphthyridine (II), yellow needles, m. $157-61^\circ$ (aqueous alc.). The residue after extraction with ligroine gave 0.1 g. 1,3,8-trichloro-8-hydroxy-2,7-naphthyridine, m. 295° (C_6H_6). II (0.46 g.), 1 g. fused KOAc , and 0.2 g. PdCl_2 in 40 ml. MeOH shaken with H_2 , the oily residue dissolved in H_2O , made alkaline, and extracted with EtOAc gave 0.04 g. 1,2,3,4-tetrahydro-2,7-naphthyridine picrate, orange-yellow prisms, m. $248-50^\circ$ (H_2O). II (0.36 g.), 0.2 g. PdCl_2 , and 1 g. anhydrous K_2CO_3 in 25 ml. MeOH shaken 1 hr. with H_2 gave 0.014 g. 1,8-dimethoxy-2,7-naphthyridine, m. $108-10^\circ$; picrate, yellow blades, m. $148-50^\circ$ (C_6H_6). From the MeOH filtrate tetrahydro-2,7-naphthyridine was isolated as the picrate. II (0.1 g.) in 5 ml. MeOH with 0.1 g. anhydrous K_2CO_3 afforded after 1 hr. 3,6-dichloro-1,8-dimethoxy-2,7-naphthyridine (III), needles, m. $155-7^\circ$ (MeOH). III (0.08 g.) was obtained when 0.1 g. II was refluxed 1 hr. in 5 ml. MeOH with 5 ml. 10% aqueous K_2CO_3 . $\text{NCCH}_2\text{CO}_2\text{Et}$ (2.5 g.), 4 g. $\text{CO}(\text{CH}_2\text{CO}_2\text{Et})_2$, and 6 drops EtNH_2 kept 7 days in 10 ml. alc., the mixture evaporated, the residue (3.2 g.) kept overnight in 20 ml. concentrated H_2SO_4 , and poured into H_2O gave 1.4 g. Et 3-ethoxycarbonyl-2,6-dihydroxy-4-pyridylacetate, orange-yellow needles, m. 176.5° (alc.). $\text{CH}_2(\text{CN})_2$ (0.35 g.), 0.43 g. Et_2CO , and 2 drops NH_4Et kept 4 days in 2 ml. alc. gave 0.06 g. 2-cyano-3-ethyl-2-pentenitrile, m. $160-1^\circ$ (aqueous alc.). Dibenzyl ketone (1.5 g.) after 12 hrs. gave 1.15 g. 3-benzyl-2-cyano-4-phenyl-2-butenitrile, plates, m. 49.5° (aqueous alc.). Me_2CO and fluorenone gave corresponding products, m. $172-3^\circ$ and 234° , resp.

IT 53162-08-6P, 1,3,6,8-Copyrinetetrol 114698-11-2P,
1,3,6,8-Copyrinetetrol, 4,5-dinitroso-(?) 116083-61-5P,
1,3,6,8-Copyrinetetrol, dibenzoate
RL: PREP (Preparation)
(preparation of)

RN 53162-08-6 CAPLUS
CN 2,7-Naphthyridine-1,8(2H,7H)-dione, 3,6-dihydroxy- (CA INDEX NAME)



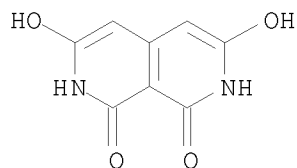
RN 114698-11-2 CAPLUS
 CN 2,7-Naphthyridine-1,8(2H,7H)-dione, 3,6-dihydroxy-4,5-dinitroso- (CA INDEX NAME)



RN 116083-61-5 CAPLUS
 CN 1,3,6,8-Copyrinetetrol, dibenzoate (6CI) (CA INDEX NAME)

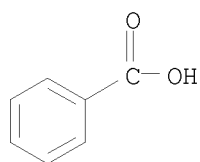
CM 1

CRN 53162-08-6
 CMF C8 H6 N2 O4



CM 2

CRN 65-85-0
 CMF C7 H6 O2



ACCESSION NUMBER: 1958:88095 CAPLUS
 DOCUMENT NUMBER: 52:88095
 ORIGINAL REFERENCE NO.: 52:15532a-i
 TITLE: 2,7-Naphthyridine derivatives
 AUTHOR(S): Birkofer, Leonhard; Kaiser, Christelmargot
 CORPORATE SOURCE: Univ. Cologne, Germany
 SOURCE: Chemische Berichte (1957), 90, 2933-40
 CODEN: CHBEAM; ISSN: 0009-2940
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

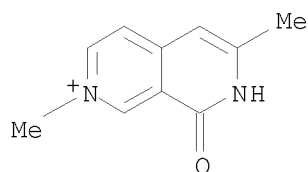
AB N-Methyl-3-aminoformylpyridinium chloride (I) condensed with Me₂CO in alkaline solution by the method of Huff (C.A. 41, 2738b), the mixture worked up, and the crude product treated with HCl gave 3,7-dimethyl-1-oxo-1,7-dihydroxy-2,7-naphthyridine.HCl (II), yellowish prisms, m. 320-2° (decomposition). II (2 g.) heated at 290-300°/0.1-0.2 and the sublimate recrystd. (H₂O) gave 75-90% 3-methyl-1-oxo-1,2-dihydro-2,7-naphthyridine (III), rods, m. 264° (H₂O). I (7.5 g.) in 195 cc. H₂O and 195 cc. Me₂CO treated with stirring with 24 cc. 7N KOH, kept 12 hrs. at room temperature, treated with 45 cc. concentrated HCl, heated 20 min. in an H₂O bath, and evaporated in vacuo, the yellow residue heated 1 hr. at 50° with a little EtOH and kept 24 hrs. at -20°, and the deposit filtered, washed with EtOH, dried, and sublimed at 290°/0.1-0.2 yielded about 20% III. III in MeOH treated with diphenyldisulfimide (IV) gave III.IV adduct, needles, m. 214°. Similarly was prepared the p,p'-dichlorodiphenyldisulfimide derivative of III, m. 175°. III, in MeOH treated with aqueous picric acid gave the picrate of III, yellow needles, m. 234° (decomposition). III refluxed with MeI gave III.MeI, scales, m 309° (decomposition) (aqueous MeOH). III.MeI with AgCl gave II. The recrystn. mother liquors from III basified slightly with aqueous Na₂CO₃ and evaporated in vacuo, the residue sublimed at 300°/0.1-0.2, the resinous brown precipitate dissolved in H₂O, the solution adjusted to pH 4, passed through Amberlite IR-4B, and extracted with CHCl₃, the extract evaporated, and the residue distilled gave 2-Me derivative of III, m. 138° (MeOH-Et₂O); HCl salt, m. 283-6° (decomposition) (MeOH). III (3 g.) in absolute MeOH treated with excess CH₂N₂-Et₂O, refrigerated 5 weeks, filtered, and evaporated, the residue boiled with H₂O, and the aqueous extract worked up gave the N-Me derivative of III, needles, m. 137-8° (picrate, leaflets, m. 217°); the H₂O-insol. material (volatile with steam) recrystd. (petr. ether) gave 1-methoxy-3-methyl-2,7-naphthyridine, (V) needles, m. 92° (petr. ether). III (2 g.) and 20 cc. POCl₃ heated 1 hr. at 140-5° in a sealed tube, cooled, filtered, and evaporated in vacuo, the residue basified with saturated aqueous Na₂CO₃ and extracted with CHCl₃, and the extract worked up gave an oil-crystal mixture which sublimed at 95-100°/12 yielded 70% 1-chloro-3-methyl-2,7-naphthyridine (VI), leaflets, m. 106° (petr. ether); picrate, m. 157° (MeOH). VI (750 mg.) in a little absolute MeOH added to NaOMe solution, refluxed 1 hr., and evaporated in vacuo, and the residue decomposed with iced H₂O, the precipitate dissolved in EtOAc, dried, and evaporated, and the residue recrystd. (petr. ether) yielded V, needles, m. 92°. VI (4.5 g.) heated 2 hrs. at 150° with 15 cc. Et₂N(CH₂)₂NH₂, the excess amine distilled, the residue dissolved in dilute aqueous KOH and extracted with Et₂O, and the extract worked up gave 1-(Et₂N CH₂CH₂NH) analog of V, yellow viscous oil, b0.012 138-40°; HCl salt, deliquescent crystals, showed in MeOH green fluorescence; dipicrate, yellow leaflets, m. 183° (decomposition)

(MeOH); monopicrate, orange prisms, m. 183-4° (H2O). VI in MeOH hydrogenated over 10 weight-% 1% Pd-CaCO3, filtered, and evaporated, the residue dissolved in H2O, the solution basified with Na2CO3, treated with NaCl, and extracted with CHCl3, and the extract worked up gave 40-50% 3-methyl-2,7-naphthyridine, deliquescent crystals, m. 39°, b0.12 76°; picrate, yellow needles, m. 219-21° (H2O). III (3 g.) in 50 cc. concentrated HNO3 (d. 1.4) heated 8 hrs. on the H2O bath with the occasional addition of a few cc. HNO3 and concentrated at 20 mm., the residue treated with H2O, the precipitate dried and refluxed 20 min. with Ac2O, and the mixture distilled yielded the anhydride of cinchomeronic acid (VII), b12 139-42°, m. 73°, which heated with H2O gave VII, m. 268° (decomposition). The anhydride of VII with EtOH gave the γ-Et ester of VII, prisms, m. 128-31° (EtOAc-ligroine).

IT 112689-01-7P, 7,8-Dihydro-2,6-dimethyl-8-oxocopyrinium iodide
 RL: PREP (Preparation)
 (preparation of)

RN 112689-01-7 CAPLUS

CN 2,7-Naphthyridinium, 3,7-dimethyl-1-oxo-, iodide (1:1) (CA INDEX NAME)



ACCESSION NUMBER: 1957:51897 CAPLUS
 DOCUMENT NUMBER: 51:51897
 ORIGINAL REFERENCE NO.: 51:9641b-i,9642a-f
 TITLE: Structure of gentianine
 AUTHOR(S): Govindachari, T. R.; Nagarajan, K.; Rajappa, S.
 CORPORATE SOURCE: Presidency Coll., Madras
 SOURCE: Journal of the Chemical Society (1957) 551-6
 CODEN: JCSOA9; ISSN: 0368-1769
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB cf. C.A. 51, 5070c. Powdered *Enicostemma littorale* (2 kg., from whole plant) made into a paste with 2 l. NH_4OH (d. 0.9) and H_2O , dried at 30° in the shade, extracted several hrs. with CHCl_3 , the extract shaken with $\text{N H}_2\text{SO}_4$, the acid extract neutralized with BaCO_3 and filtered, the filtrate acidified with AcOH , concentrated, made alkaline with NH_4OH , extracted thoroughly with Et_2O , and the crude product on evaporation (6-12 g.) crystallized from moist Et_2O gave 4-8 g. gentianine (I), m. $82-3^\circ$, $[\alpha]_{\text{D}30} \pm 0^\circ$ (CHCl_3), λ 220, 245, 280 $\text{m}\mu$ (log ϵ 4.38, 3.9, 3.2), ν 1719 ($\alpha\beta$ -unsatd. δ -lactone), 1634 (conjugated double bond) cm^{-1} , with no bands in the 1300-1400 cm^{-1} (C-methyl) region, no C-Me group by Kuhn-Roth method; HCl salt, m. $169-70^\circ$ (decomposition); HBr salt, m. 178° (decomposition); HNO_3 salt, m. 113° (decomposition); oxalate, m. $123-4^\circ$; (+)-tartrate, m. 138° ; picrate, m. $123-4^\circ$; methiodide, m. 193° . In general the m.p. of the salts agree with those given by Proskurnina, et al. (C.A. 40, 72132; 44, 159d). Treatment with alc. NaOH gave a Na salt from which I was recovered on acidification. I (0.8 g.) in 25 ml. MeOH shaken with H at 55 lb./sq. in. in the presence of PtO_2 and the product crystallized from Et_2O -petr. ether gave 0.6 g. dihydrogentianine, m. $74-6^\circ$, λ 270 $\text{m}\mu$ (log ϵ 3.4); picrate, m. $140-2^\circ$. I (0.5 g.) ozonized 6 hrs. in 50 ml. dry CHCl_3 at 0° , the mixture evaporated in vacuo at 30° and the residue refluxed 1 hr. with 100 ml. H_2O , the solution diluted with 100 ml. H_2O and 1 ml. AcOH , steam distilled into 200 ml. H_2O containing 1.5 g. dimedon, the distillate boiled, filtered hot, and the solution cooled gave $\text{HCHO-Me}_2\text{C}_6\text{H}_6\text{O}_2$, m. 187° . Oxidation of 1.45 g. I in 50 ml. Me_2CO with 4.4 g. KMnO_4 in 300 ml. Me_2CO produced 0.94 g. 4-(2-hydroxyethyl)pyridine-3,5-dicarboxylic acid lactone (II), m. $260-2^\circ$, λ 265 $\text{m}\mu$ (log ϵ 3.1), showing the presence of a vinyl group. Vigorous oxidation of 0.5 g. I in 20 ml. 2N NaOH at 100° with 2 g. KMnO_4 in 20 ml. H_2O , working up the product, and purifying by passage through Zeo-Karb 315 gave pyridine-3,4,5-tricarboxylic acid, m. $262-4^\circ$, also obtained by oxidation of 5-ethyl-4-methylnicotinic acid (III). II (0.94 g.) in 3 ml. H_2O containing 0.55 g. KOH evaporated and the salt distilled with 3 g. soda-lime gave crude base (picrate, m. $155-6^\circ$), oxidized (100 g.) in 20 ml. H_2O containing 1 ml. 2N NaOH at 100° with 0.3 g. KMnO_4 , the solution filtered, the filtrate and hot H_2O washings acidified and evaporated, the residue extracted with boiling alc. yielding isonicotinic acid (picrate, m. 215°), thus establishing the alc. side chain in position 4. Two alternative structures for I given by these degradations were evaluated by synthesis since attempts to decarboxylate the acid from the I dihydro derivative were unsuccessful. The simpler 4-(1-hydroxyethyl)-nicotinic acid lactone (IV) was first synthesized to determine the exptl. conditions. $\text{EtCOCH}_2\text{CO}_2\text{Et}$ (9 g.), 5 g. $\text{NCCH}_2\text{CONH}_2$, 10 ml. piperidine, and 15 ml. MeOH refluxed 3 hrs., the MeOH evaporated, and the residue in 50 ml. H_2O acidified with dilute HCl yielded 3 g. 3-cyano-2,6-dihydroxy-4-ethylpyridine. The nitrile (9 g.) heated 4

hrs. at 180° with 18 ml. POCl₃ in a sealed tube, the cooled mixture poured onto cracked ice, the solution extracted at room temperature with Et₂O, the dried extract evaporated and the crude chloro compound (8 g.) hydrogenated 30 min.

at 2 atmospheric in 100 ml. MeOH containing 10 g. KOAc and 0.7 g. PdCl₃, the filtered

solution evaporated, the residue in 50 ml. H₂O saturated with NaHCO₃ and extracted with

Et₂O, the dried extract evaporated, and the residue distilled in vacuo gave 3.7 g.

4-ethylnicotinonitrile, b_{3.5} 92-3° (picrate, m. 153-5°), hydrolyzed to 4-ethylnicotinic acid. The acid (0.85 g.) in 6 ml. AcOH containing 2 ml. 30% H₂O heated 3 hrs. at 70°, treated with 2 ml. 30% H₂O, and kept 8 hrs. at 70°, the solution evaporated in vacuo and the residue recrystd. twice from H₂O gave 0.85 g. N-oxide, m. 187-8°, converted by refluxing 4 hrs. in dioxane containing Ac₂O to 4-(1-hydroxyethyl)pyridine acetate (picrate, m. 148-51°) and IV, m. 87-8°, λ 255 m μ (log ϵ 3.18) (picrate, m. 153°), also obtained by warming 0.5 g. acid into solution with 2 ml. Ac₂O and keeping the mixture overnight at 30°. Similarly, 4,5-diethylnicotinic acid (V) was synthesized from EtCOCH₂EtCO₂Et (VI). VI (22 g.) shaken 6 days with 40 ml. NH₄OH (d. 0.9), the aqueous layer separated

and

treated with 16 ml. NCCH₂CO₂Et, filtered after standing 4 days at 30°, the residual salt taken up in H₂O and the solution acidified, filtered, and the residue recrystd. from H₂O gave 7 g. 3-cyano-4,5-diethyl-2,6-dihydroxypyridine (VII), m. 186-7° (decomposition). VII (10 g.) heated with 20 ml. POCl₃ gave 8 g. chloro

compound,

hydrogenated in 100 ml. MeOH containing 8 g. KOAc and 0.7 g. PdCl₄ to give 3.2 g. 4,5-diethylnicotinonitrile, b. 110° (picrate, m. 144.0-5.5°), which heated 6 hrs. at 140° with 32 ml. 75% H₂SO₄, the iced mixture treated with Ca(OH)₂ to pH 5-6, filtered, the filtrate and washings evaporated in vacuo, the residue extracted with alc., the extract evaporated and the residual amino acid sulfate taken up in H₂O and

passed

through De-Acidite E, the eluate evaporated, and the residue recrystd. from alc.-Et₂O gave 2.5 g. V, m. 115-16°; N-oxide, m. 190-2°. The oxide (0.5 g.) shaken with 2 ml. warm Ac₂O, the dark red solution worked up to give 180 mg. red oily 5-ethyl-4-(1-hydroxyethyl)nicotinic acid lactone; picrate, m. 148-9°, ν 1763 cm.⁻¹

(α,β -unsatd. γ -lactone), differing from that of dihydrogentianine picrate, m. 140-2°, ν 1720 cm.⁻¹, and so eliminating the structure proposed by P., et al. (loc. cit.), for I. POCl₃ (10 ml.) heated 4.5 hrs. at 160° with 5 g.

3-cyano-2,6-dihydroxy-5-ethyl-4-methylpyridine [from AcCH₂EtCO₂Et (cf. Ruzicka and Fomasir, C.A. 13, 3179)] gave 4.5 g.

3-cyano-2,6-dichloro-5-ethyl-4-methylpyridine, hydrogenated in 50 ml. MeOH containing 0.4 g. PdCl₄ and 5.5 g. KOAc to yield 2.5 g.

5-ethyl-4-methylnicotinonitrile, b₇ 120° (picrate, m. 157-8°), hydrolyzed with 75% H₂SO₄ and worked up to give

5-ethyl-4-methylnicotinic acid (VIII), m. 163-5°. VIII (1 g.) and 3 ml. 40% HCHO heated 24 hrs. at 100° in a sealed tube, excess HCHO removed by steam distillation, the solution concentrated to 5 ml. and extracted with

CHCl₃Et₂O, the dried extract evaporated and the Et₂O-washed residue crystallized from

MeOH-Et₂O gave 2-(3-carboxy-5-ethyl-4-pyridyl)propane-1,3-diol lactone (IX), m. 168-9°, identical with that obtained by similar treatment of dihydrogentianine, m. 74-6°, synthesized by heating 0.5 g. VIII Na salt 15 hrs. at 100° with 0.3 ml. 40% HCHO and fractionating the

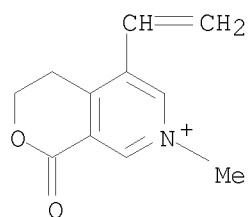
crude product from petr. ether, together with IX. The structure of I is conclusively established and the identity of I from E. littorale and gentianine confirmed. The alkaloid erythricine (C.A. 41, 7676c) may also prove to be identical with I.

IT 117885-38-8

(Derived from data in the 6th Collective Formula Index (1957-1961))

RN 117885-38-8 CAPLUS

CN 1H-Pyrano[3,4-c]pyridinium, 5-ethenyl-3,4-dihydro-7-methyl-1-oxo-, iodide (1:1) (CA INDEX NAME)



● I⁻

ACCESSION NUMBER: 1957:51896 CAPLUS
 DOCUMENT NUMBER: 51:51896
 ORIGINAL REFERENCE NO.: 51:9640b-i,9641a-b
 TITLE: Taraxanthin and tarachrome. Stereoisomeric trollixanthins
 AUTHOR(S): Eugster, C. H.; Karrer, P.
 CORPORATE SOURCE: Univ. Zurich, Switz.
 SOURCE: Helvetica Chimica Acta (1957), 40, 69-79
 CODEN: HCACAV; ISSN: 0018-019X
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB Pure crystalline taraxanthin (I) (cf. Kuhn and Lederer, C.A. 21, 750) has been isolated from Bundner Rheintal summer crop yellow balsam (*Impatiens noli-tangere*) by a modification of the procedure of K. and L. Shade-dried blossoms (5500) (45.5 g.) warmed gently with C₆H₆, kept overnight and decanted, the extraction repeated and the material dried in vacuo at 40°, milled and again extracted with C₆H₆, the combined exts. evaporated in vacuo (N atmospheric), the viscous oily residue taken up in 70 cc. C₆H₆, treated with 6.5 g. KOH in 50 cc. alc. and some petr. ether, the mixture kept 8 hrs. at room temperature and warmed 45 min. at 70°, the cooled mixture diluted with H₂O and extracted several times with Et₂O, the washed and dried extract filtered and evaporated, the pigment resin distributed between 50 cc. MeOH and 70 cc. petr. ether (b. 30-60°), filtered from precipitated I, the epiphase extracted with 50 cc. 90% MeOH, the combined MeOH exts. evaporated, taken up in MeOH and centrifuged at 3500 r.p.m. with addition of petr. ether, the precipitate again precipitated by centrifugation from MeOH and petr. ether, the powdery product taken up in C₆H₆, filtered and the filtrate evaporated in vacuo, the residue dried at 40° in vacuo, combined with precipitated I and extracted with boiling C₆H₁₄, the insol. residue crystallized from MeOH, the crude pigment (57.7 mg., m. 175.0-7.5°) recrystd. from MeOH, the coppery-shining prisms (38.9 g., m. 180.5-1.5°) recrystd. slowly from C₆H₆ and C₆H₁₂ gave 32.0 g. reddish granular I, C₄₀H₆₆O₄, m. 183.5-4.0°, λ 501.5, 469, 442 m μ (in CS₂); 48.5, 455, 428.5 m μ (ϵ 132,300, 138,600, 91,700, in C₆H₆). I is isomeric with violaxanthin (II), λ 483, 453.5, 428 m μ (ϵ 128,400, 134,400, 88,500, in C₆H₆) and trollixanthin (III), λ 482, 454, 427 m μ (ϵ 121,800, 127,700, 84,400, in C₆H₆, trans form (IIIa)]. I differs from II which gives a very stable dark blue salt with 20% HCl. On shaking in Et₂O with 25% (or stronger) HCl pure I gives a faint pos. blue coloration indicative of the presence of an epoxy grouping or its rearrangement product. The combined mother liquors from crystallization of I taken up in 50 cc. CHCl₃, the red solution treated with 5 cc. 0.012N HCl in CHCl₃, after 90 sec. the green solution shaken with excess aqueous NaHCO₃, the bright red mixture washed with H₂O, filtered through an adsorbent cotton column, and the filtrate evaporated in vacuo gave a residue, λ 459.5, 435 m μ (in C₆H₆). The residue in C₆H₆ chromatographed over a 4:1 CaCO₃-Celite column (7.4 + 22 cm.), developed with 1 l. C₆H₆-petr. ether and 550 cc. C₆H₆, the egg-yellow zone eluted with Et₂O-MeOH, the eluate evaporated and the pigment taken up in 2 cc. C₆H₆, the solution treated with excess petr. ether and filtered, the yellow substance recrystd. from MeOH at -15°, and the yellow microcryst. product twice recrystd. from MeOH at -20° and again from MeOH at 0° gave tarachrome (IV), m. 154-64°, λ , 460, 434 m μ (in C₆H₆); 478, 449 m μ (in CS₂). Further purification by chromatography on 4:1 ZnCO₃-Celite from C₆H₆ with 15% Me₂CO₃ by elution of the egg-yellow zone with Et₂O-MeOH and crystallization from

MeOH yielded 3 mg., m. 162-8°, λ 460, 431.5, 407.5 m μ
 (ϵ 118,000, 119,400, 74,900), indicative of a sterically
 nonhindered all-trans polyene system, and practically congruent with the
 curves of trollichrome (V), flavoxanthin, and chrysanthemaxanthin. The
 chromatograms gave no evidence of an isomeric mixture such as occurs in the
 acid rearrangement of xanthophyll epoxide (VI). I liberates 3 moles CH₄
 in Zerevitinov active-H determination and consumes 10.7 moles H in

hydrogenolysis.

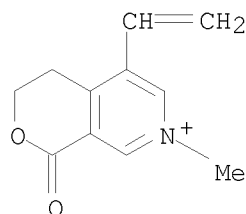
I is regarded as an hydroxylated VI of which IV is the furanoid
 rearrangement product. Pure I (16.6 mg.) in 13 cc. CHCl₃ treated with
 0.012N HCl in CHCl₃, shaken 90 sec. later with excess NaHCO₃ solution, the
 orange solution worked up to a resin, taken up in Et₂O and evaporated (N
 atmospheric),
 and the crystalline residue recrystd. from C₆H₆ and MeOH gave fine yellow
 leaflets of IV, m. 162-8°, C₄₀H₅₆O₄. Various specimens of
 previously isolated III, m. 143-5°, 155-6°, and 199°,
 were reexamd. to check their nonidentity with pure I, since all were
 rearranged to give the same V, m. 206°. These various forms
 consist of IIIa, m. 199°, λ 482, 454, 427 m μ (ϵ
 121,800, 127,700, 84,400, c 1.07 + 10⁻⁵ m., in C₆H₆), cis-III
 (IIIb), m. 143-5°, λ 481, 456, 430 m μ (ϵ 50,900,
 74,000, 64,000, c 1.182 + 10⁻⁵, in C₆H₆), and a difficultly separated
 mixture of IIIa and IIIb. All attempts to invert the cis form to the
 all-trans form gave only unchanged IIIb, V, or decomposition products. The
 occurrence of IIIb in some specimens of Trollius europaeus (mountain globe
 flower) and of IIIa in others may depend on the time of harvesting (cf.
 Zechmeister and Schroeder, C.A. 37, 11529).

IT 117885-38-8

(Derived from data in the 6th Collective Formula Index (1957-1961))

RN 117885-38-8 CAPLUS

CN 1H-Pyrano[3,4-c]pyridinium, 5-ethenyl-3,4-dihydro-7-methyl-1-oxo-, iodide
 (1:1) (CA INDEX NAME)



● I⁻

L6 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1946:37331 CAPLUS

DOCUMENT NUMBER: 40:37331

ORIGINAL REFERENCE NO.: 40:7213b-e

TITLE: Alkaloids of *Gentiana kirilowi*. Structure of gentianine

AUTHOR(S): Proskurnina, N. F.

SOURCE: Zhurnal Obshchei Khimii (1944), 14, 1148-52

CODEN: ZOKHA4; ISSN: 0044-460X

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB Extraction of ground *Gentiana kirilowi* with dichloroethane in the presence of 10% NH₄OH, followed by extraction of the extract with 10% H₂SO₄, treatment of the

acid extract with excess NH₃, and crystallization from Et₂O gave 0.2% crude alkaloid

mass, which, on crystallization from EtOH, gave 0.1% gentianine, m. 79-80°;

HCl salt, m. 171-2°; H Br salt, m. 177-8° (from EtOH); HNO₃

salt, m. 238-40° (from EtOH); oxalate, m. 152-3° (from

EtOH); methiodide, m. 190-1° (from EtOH). The empirical formula of

the alkaloid is C₁₀H₉NO₂. Hydrogenation over Pt in HCl solution gave

dihydrogentianine, m. 75-6° (from EtOH), while treatment of the

alkaloid with alc. NaOH yielded a precipitate of Na salt of gentianinic acid,

m.

132-4°; the acid is readily transformed into gentianine-HCl on

standing in HCl solution, thus indicating the probability of a lactone

structure. Oxidation of the alkaloid with KMnO₄ in Me₂CO yielded an acid,

C₉H₇NO₄, m. 260-2° (from water), which, on oxidation with alkaline

KMnO₄, gave an acid, C₈H₅NO₆, m. 265-7° (from water in the presence

of HCl). Distillation of the alkaloid with Zn dust gave pyridine. The

alkaloid

is apparently a 3-vinylpyridine derivative, with a lactone-type bicyclic structure.

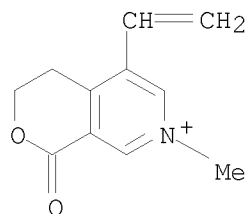
IT 117885-38-8P

RL: SPN (Synthetic preparation); PRP (Properties); PREP (Preparation)

(Alkaloids of *Gentiana kirilowi*. Structure of gentianine)

RN 117885-38-8 CAPLUS

CN 1H-Pyrano[3,4-c]pyridinium, 5-ethenyl-3,4-dihydro-7-methyl-1-oxo-, iodide (1:1) (CA INDEX NAME)



● I⁻

=> log y

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

85.10

458.08

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

-12.30

-12.30

STN INTERNATIONAL LOGOFF AT 19:51:51 ON 21 MAY 2009